ADEQ

A R K A N S A S
Department of Environmental Quality

April 4, 2011

Certified Mail: 7006 3450 0003 4067 6533

U.S. Environmental Protection Agency
Attn: Mr. Shawn Ghose (6SF-RA)
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202

Subject: Arkwood, Inc. Comments to the Draft Third Five Year Review
AFIN: 05-00003; EPA ID Number ARD084930148

Dear Mr. Ghose:

The Arkansas Department of Environmental Quality-Hazardous Waste Division (ADEQ) has completed our review of the Draft Third Five Year Review for the former Arkwood Wood Treating facility in Omaha, Arkansas. ADEQ has noted the following items which will need to be addressed in the Five Year Review:

1) **Title Page:** Please remove the extra character in "Boone County".
2) **Summary of Five Year Review Findings, page ii:** On line eight, insert after "...residual contamination." Information relative to the soils with contaminant levels below the remedial objectives were left on site and covered with clean fill (six inches to 6.3 feet).
3) **Actions Needed, page ii:** To date the property owner has not filed a deed restriction for the property. The draft deed restriction as it has been provided to the ADEQ contains several deficiencies including, but not limited to, a restriction on groundwater use with the exception of the currently active remedial system, a no-dig restriction in the remediated area, an accurate identification of the soil cap area, a statement limiting the site to industrial use only (zoning requirements are not considered a long term solution due to the ability to change them), and protection of the current remedial system by ensuring the employment of appropriate engineering controls. Remove all reference to commercial use. These changes will need to be reflected in all areas of the report in which the deed restriction is mentioned.

   The remedial objectives as outlined in the Record of Decision (ROD), effectively met the industrial screening standards at the time of remediation. The Remedial Objectives (ROs) specify values of pentachlorophenol (PCP) at 300 mg/kg, dioxin at 0.002 mg/kg, and benzo-a-pyrene at 6.0 mg/kg. These values exceed the present industrial soil screening values as determined in the EPA Region VI Regional Screening Table, November 2010. New values specify that industrial soils be Regulated as follows: Pentachlorophenol is 2.7 mg/kg, dioxin as 2,3,7,8 TCDD is 1.8E-5 mg/kg, and benzo-a-pyrene is 0.21 mg/kg. All soils which exceed these levels and would not be contained in

the no-dig restriction area, as it is currently defined, would need to be protected by a no-dig restriction as well.

4) **Executive Summary, Groundwater Remediation, page viii, paragraph 1:** Please clarify that the residual contaminated soils in the subsurface fractures and channels exceed the protection of groundwater Regional Screening Levels (RSLs) and therefore continue to source to the groundwater.
5) **Five Year Review Summary Form, page ix:** Please correct the EPA ID number to ARD084930148.
6) **Five Year Review Summary Form, Recommendations and Follow-up Actions, page x:** Revise this section to include the requirements for the deed restriction. pH values should be taken at the discharge point over the weir. APC&EC Reg.2.508 Toxic Substances Specific Standards, as revised, effective January 23, 2011 require that pH values remain between 6.0 and 9.0.
7) **Introduction, page 1, paragraph 4:** add "the" before second five-year report.
8) **Section III Background, Sub-section A. Location, page 3:** The route of highway 65 has been altered since the last 5 year review. The site is situated west of old highway 65 and east of the current course of highway 65. Please amend this section to reflect these changes. Include an updated site location map.
9) **Section III Background, Sub-section A. Location, page 3:** The vegetation is referred to as sparse in this section. In all other areas of the report the vegetative cap is reported as good. Please change this statement to match the remainder of the report.
10) **Section IV Remedial Actions, Sub-Section B Remedy Implementation, heading c, Groundwater Remediation, Sampling of Springs, page 9, third sentence:** Please change the name of New Cricket Creek to New Cricket Spring.
11) **Section IV. Remedial Actions, Sub-Section B Remedy Implementation, heading a Soil Remediation, page 7, paragraph 2:** Please add that excavation in the area of the sinkhole was up to 6.3 feet.
12) **Section IV Remedial Actions, Sub-Section B. Remedy Implementation, heading b. Site Closure Activities, page 8, paragraph 2:** Change the tense to indicate present day as inspections are currently conducted.
13) **Table 2, Spring Samples 1996-2010, page 9:** Include the appropriate units for PCP on this table.
14) **Table 3, New Cricket Spring, page 17:** Indicate that the units represented in the table are in gallons per minute.
15) **Section VI Five Year Review Findings, Sub-section A. Interviews, page 23:** The EPA provides guidelines for community involvement. Requirements for community involvement and interviews of the 5 year review team may be found in the EPA 540-R-01-007, OSWER No. 9355.7-03B-P, section 3.4, page 3-2. Ensure that this report conforms to these guidelines. Interviews and copies of community notices should be included in the final report. Add a reference to the appropriate appendix with interview forms.
16) **Section VI Five-Year Review Findings, Sub-Section C Risk Information Review, page 24:** Under the Federal standards please add EPA RSL tables. A table with the Site ROs for soil and the RSLs for Industrial direct contact soil and the protection of groundwater values would be appropriate here.
17) **Section VI Five-Year Review Findings, Sub-Section C Risk Information Review, page 24:** For State standards please change the reference from ADEQ to APC&EC Regulation 2. Ensure that this correction is made in all sections of the report.
18) **Section VI Five Year Review Findings:** This section should include identification of

five-year review team members.

19) **Section VII. Assessment, Question A, page 25, paragraph 2:** Clarify that the majority of the source area for groundwater impacts have been removed. Residuals above protection of groundwater levels remain in subsurface fractures and channels. Change ADEQ to APC&EC in the last sentence.

20) **Section VII. Assessment, Question B, paragraph 1, page 25:** Add changes to the Regional screening levels which may affect assumptions used at the time of remedy selection. See comment 3. In addition, original values established for the daily and monthly discharge limits of PCP were calculated based on a water station distant from the site. APC&EC Reg. 2.508 provides the accurate methodology to be employed at the site. In addition, permitting requirements have changed under the State of Arkansas Continuing Planning Process, Updated and Revised January 2000 (CPP). The revised Monthly average should be 17.38 µg/l and the revised Daily Maximum value should be 34.86 µg/l. Additional information regarding these changes can be located in the attachment.

21) **Section VII. Assessment, Question B, paragraph 3, page 25:** Note that the Regional Screening Levels have changed, but as long as the Site cap remains undisturbed, engineering controls remain in place, the groundwater treatment system at the spring continues to function properly, and the modified deed restriction is implemented, the Site remedy is protective of human health and the environment.

22) **Section VII, Assessment, System Operation and Maintenance, page 25:** EPA guidelines specify that annual operations and maintenance costs should be included in the five year review. Additional information Regarding this requirement can be located in EPA 540-R-01-007, OSWER No. 9355.7-03B-P, Section 3.0 Components of the 5 Year Review Process, Sub-Section 3.3 How Should I Establish a Review?, page 3-1; Exhibit 3-1Potential Members of the 5 Year Review Team, page 3-2; Exhibit 3-3 Contents of a 5 Year Review Report, page 3-6&7 ; and Appendix F, Sample 5 Year Review Report, page F-1.

23) **Section VIII. Deficiencies, page 26:** Please add the necessary additions to the deed restriction, as listed in comment 3 to this section. pH values should be taken at the discharge point over the weir. APC&EC Reg.2.508 Toxic Substances Specific Standards, as revised, effective January 23, 2011 require that pH values remain between 6.0 and 9.0. Additionally review of the January 30, 1998 letter establishing guidelines for the site specific discharge limits, identifies these limits as well. This change will need to be reflected in all appropriate areas of the report.

24) **Section VIII. Deficiencies, page 26:** APC&EC Reg. 2.505 requires that dissolved oxygen (D.O.) levels meet or exceed 6.0 mg/l. During the months of March, April, and May, when discharge levels at the weir exceed 15 CFS the D.O. standard is 6.5 mg/l.

25) **Section IX. Recommendations and Follow-up Actions, page 26:** Add all of the deed restriction requirements listed in comment 3. Add information regarding the pH, dissolved oxygen, and temperature collection in this section. Include information on the parties responsible for implementation, agencies with oversight authority, and a schedule for implementation and completion of these items as listed in the Comprehensive 5 Year Review Guidance Document.

26) **Section IX. Recommendations and Follow-up Actions, page 26:** The PRP is responsible for sampling all PCP levels at the site. The ADEQ recommends that verification samples be collected to support MMI's laboratory findings.

27) **Section X. Protectiveness Statements, Sub-Section Soil Remedy, page 26:** Zoning is not considered an institutional control. Please amend this section to state that a deed restriction will be put into place restricting the site to industrial use only.
28) **Section X. Protectiveness Statements, Sub-Section Groundwater Remedy, page 26:** Correct the reference to ADEQ to APC&EC Regulation 2 water quality standards. Edit the last sentence to read "Since the majority of the affected soil at the Site has been removed, the PCP level in groundwater should continue to decrease under application of the ozone treatment at the spring mouth."
29) **Figure 2a, page 15:** Correct the title of the header and table to read average PCP concentrations.
30) **Attachment 1, Arkansas Water Quality Standard Calculations:** As stated in comment 20, original values established for the daily and monthly discharge limits were calculated based on a water station distant from the site. Please see the attached explanation for determining surface water values. This information should be included in Attachment 1 as needed.

General Comments:

1) The section on Progress Since the Last Five-Year Review is missing.
2) Additional photo logs are attached please feel free to use these as fit for the report.

If you have any questions or comments regarding this review, please feel free to contact me at (501) 682-0789 or by e-mail at egan@adeq.state.ar.us.

Sincerely

Marilyn Egan, BS
Geologist, Hazardous Waste

cc: Jean Mescher, McKesson Corporation, One Post Street 34th Floor, San Francisco, CA 94104

encl: pentachlorophenol calculations, site photos

Pentachlorophenol Calculations for Surface Discharge

Per Reg. 2.508, the Pentachlorophenol aquatic life water quality standards (WQS) are as follows:

Acute	Chronic
$e^{[1.005(pH)-4.869]}$	$e^{[1.005(pH)-5.134]}$

pH = 7.84 s.u.

The pH used in calculating the standards, 7.84 s.u., is the average pH taken at monitoring station WHI0071 from 2004 – 2009.

Acute Standard

$e^{[1.005(7.84)-4.869]} = 20.29$ µg/l

Chronic Standard

$e^{[1.005(7.84)-5.134]} = 15.57$ µg/l

Reasonable potential for water quality violations is determined by comparing the effluent data to the WQS without taking into account a background flow because the 7Q10 of the receiving stream is 0 cfs. In accordance with the procedures outlined in the Continuing Planning Process (CPP), the highest effluent test result is compared to the water quality standards because over twenty data points exist. The highest effluent test result is 20 µg/l which occurred on July 10, 2008. It is important to note that higher test results occurred on October 22, 2007, and July 7, 2008. Those test results, 53.7 µg/l and189 µg/l, respectively, were not used because it appears as though those results were not representative of the effluent.

Comparison with Acute Standard

20 µg/l < 20.29 µg/l

Comparison with Chronic Standard

20 µg/l > 15.57 µg/l

Reasonable potential for exceedances of the WQS exists because the effluent test result is greater than the chronic water quality standard. Permit limits are calculated as follows in accordance with the CPP. The most stringent Long Term Average (LTA) will be used to calculate the final permit limits.

Since 7Q10 = 0 cfs, Waste Load Allocation (WLA) = WQS

$LTA_{acute} = 0.57 * WLA_{acute}$ [1]

$LTA_{acute} = 0.57 * 20.29\ \mu g/l = 11.57 \mu g/l$

$LTA_{chronic} = 0.72 * WLA_{chronic}$ [1]

$LTA_{chronic} = 0.72 * 15.57 = 11.21\ \mu g/l$

The chronic LTA is more stringent than the acute LTA. Therefore, the chronic LTA will be used to calculate the permit limits.

Average Monthly Limit = LTA * 1.55 = 11.21 µg/l * 1.55 = 17.38 µg/l [2]

Daily Maximum Limit = LTA * 3.11 = 11.21 µg/l * 3.11 = 34.86 µg/l [2]

[1] Values may be located in the State of Arkansas Continuing Planning Process Document, Update and Revisions January, 2000. Appendix D Implemtation of Toxic Substances, page D-37. http://www.adeq.state.ar.us/water/pdfs/cpp.pdf

[2] Values may be located in the State of Arkansas Continuing Planning Process Document, Update and Revisions January, 2000. Appendix D Implemtation of Toxic Substances, page D-38. http://www.adeq.state.ar.us/water/pdfs/cpp.pdf

ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY

Official Photographic Log

SITE NAME: Arkwood, Inc.	**PHOTO # 1**	**DISK # PHOTO #**
SITE LOCATION: Omaha, Arkansas		
EPA ID#: ARD084930148		
PHOTOGRAPHER: Marilyn Egan	**WITNESS: Dianna Kilburn, Shawn Ghose**	
DATE: February 23, 2011	**CAMERA:**	
DIRECTION: West		
SUBJECT: Injection well points, depression to the right of the injection stick up is the cover for the injection well control.		

ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY

Official Photographic Log

SITE NAME: Arkwood, Inc.	**PHOTO # 2**	**DISK # PHOTO #**
SITE LOCATION: Omaha, Arkansas		
EPA ID#: ARD084930148		
PHOTOGRAPHER: Marilyn Egan	**WITNESS: Dianna Kilburn, Shawn Ghose**	
DATE: February 23, 2011	**CAMERA:**	
DIRECTION:		
SUBJECT: Storage silos used during remediation, the middle one now houses the groundwater injection system.		

ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY

Official Photographic Log

SITE NAME: Arkwood, Inc.	**PHOTO # 3**	**DISK # PHOTO #**
SITE LOCATION: Omaha, Arkansas		
EPA ID#: ARD084930148		
PHOTOGRAPHER: Marilyn Egan	**WITNESS: Dianna Kilburn, Shawn Ghose**	
DATE: February 23, 2011	**CAMERA:**	
DIRECTION:		
SUBJECT: Groundwater injection pump house and former ozone injection system		

ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY

Official Photographic Log

SITE NAME: Arkwood, Inc.	**PHOTO # 4**	**DISK # PHOTO #**
SITE LOCATION: Omaha, Arkansas		
EPA ID#: ARD084930148		
PHOTOGRAPHER: Marilyn Egan	**WITNESS: Dianna Kilburn, Shawn Ghose**	
DATE: February 23, 2011	**CAMERA:**	
DIRECTION:		
SUBJECT: Mouth of the New Cricket Spring		

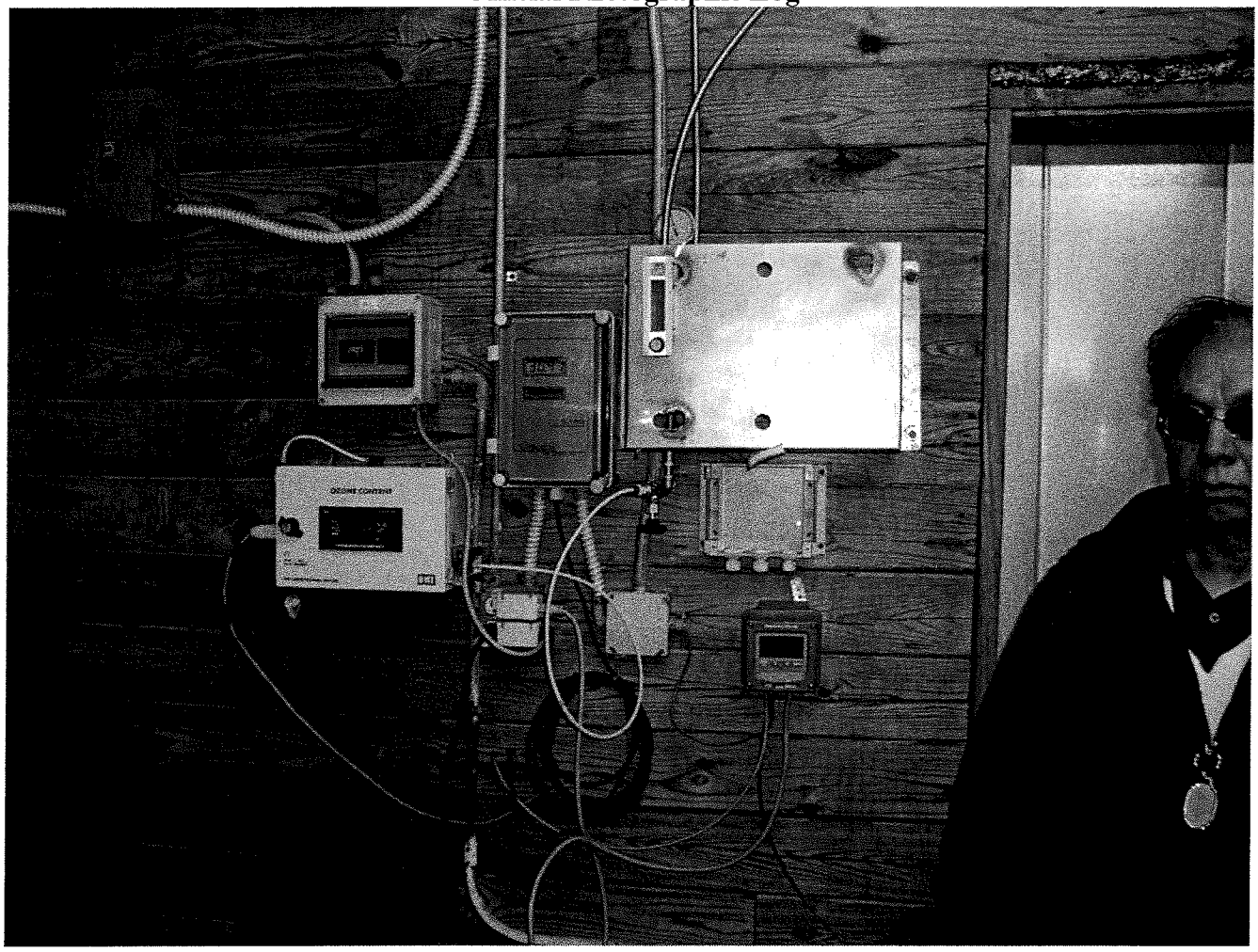
ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY

Official Photographic Log

SITE NAME: Arkwood, Inc.	**PHOTO # 5**	**DISK # PHOTO #**
SITE LOCATION: Omaha, Arkansas		
EPA ID#: ARD084930148		
PHOTOGRAPHER: Marilyn Egan	**WITNESS: Dianna Kilburn**	
DATE: February 23, 2011	**CAMERA:**	
DIRECTION: Northwest		
SUBJECT: Exterior of cabin housing ozone treatment system and exterior baffling system discharging through the weir		

ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY

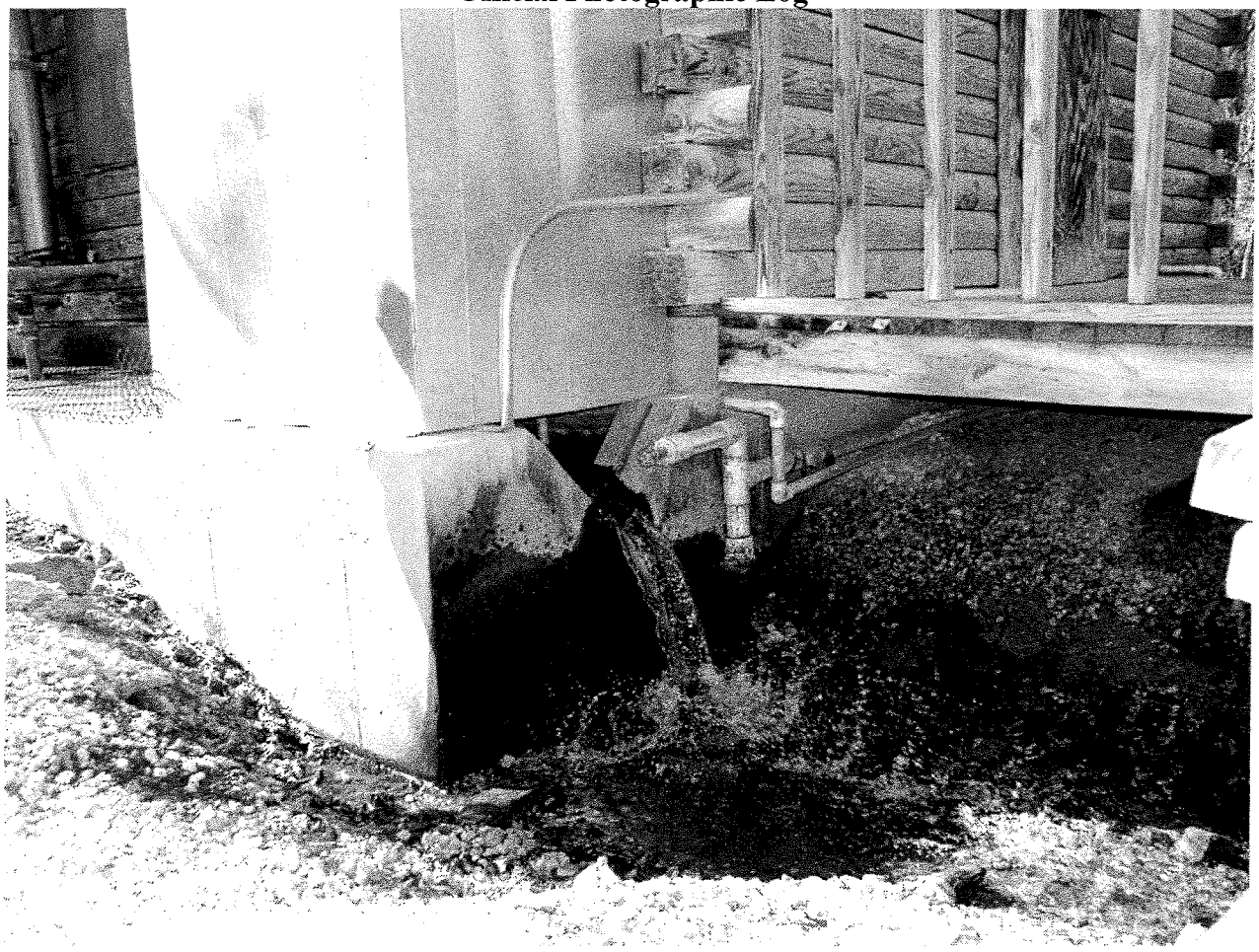
Official Photographic Log



SITE NAME: Arkwood, Inc.	**PHOTO # 6**	**DISK # PHOTO #**
SITE LOCATION: Omaha, Arkansas		
EPA ID#: ARD084930148		
PHOTOGRAPHER: Marilyn Egan	**WITNESS: Dianna Kilburn, Shawn Ghose**	
DATE: February 23, 2011	**CAMERA:**	
DIRECTION:		
SUBJECT: Ozone injection monitoring system inside cabin treatment building		

ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY

Official Photographic Log



SITE NAME: Arkwood, Inc.	**PHOTO # 7**	**DISK # PHOTO #**
SITE LOCATION: Omaha, Arkansas		
EPA ID#: ARD084930148		
PHOTOGRAPHER: Marilyn Egan	**WITNESS: Dianna Kilburn, Shawn Ghose**	
DATE: February 23, 2011	**CAMERA:**	
DIRECTION:		
SUBJECT: Treated water outfall over the weir – after final treatment with ozone (discharge point to New Cricket Creek)		

ADEQ

A R K A N S A S
Department of Environmental Quality

HAZARDOUS WASTE DIVISION ROUTING SLIP

[03/23/2011]

Subject: Arkwood Wood Treaters

From: Marilyn Egan ME

Route in turn to:	***Action Needed***	***Initials***	***Date***
M. Moix	☑ Concurrence ☑ Review	MM	3-24-11 w/comments 4-1-11 4-25
A. Cusher	☑ Concurrence ☐ Review	AC	3/27/11 4/1/11
J. Rich	☐ Concurrence ☐ Review	JR	4-1-11
D. Kilburn	☑ Concurrence ☐ Review	DK	3/25/11 4/1/11
T. Hynum	☐ Concurrence ☐ Review	TH	4/1/11
C. Rhodes	☐ Concurrence ☐ Review	CR	04/04/11

Note: Marking the Concurrence box indicates the individual agrees with the applicable text as it relates to their individual discipline and Work Section (e.g., Engineer; Risk Assessor; Geology; Compliance; Policy/Management), as applicable. Marking the Review box indicates the individual has read the document.

DISPOSITION:

Return to Marilyn

COMMENTS: Arkwood 5 Year Review